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IS : 8255 - 1976

Indian Standard
**SPECIFICATION FOR
FLEXIBLE LOAD BEARING POLYURETHANE
FOAM COMPONENTS FOR VEHICLES**

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR FLEXIBLE LOAD BEARING POLYURETHANE FOAM COMPONENTS FOR VEHICLES

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Indian Standard

SPECIFICATION FOR FLEXIBLE LOAD BEARING POLYURETHANE FOAM COMPONENTS FOR VEHICLES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 29 July 1976 after the draft finalized by the Plastics Sectional Committee had been approved by the Chemical Division Council.

0.2 This standard contains clauses **4.2, 4.3, 4.7** and **4.8** which call for an agreement between the purchaser and the supplier.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for flexible load bearing polyurethane foam components (polyether type) for vehicles. The foam is manufactured in blocks, sheets, strips and in moulded and fabricated shapes.

2. TERMINOLOGY

2.1 For the purpose of this standard, definition given in 2 of IS : 2828 - 1964† and IS : 7888 - 1976‡ shall apply.

3. TYPES AND GRADES

3.1 Types — Flexible polyurethane foam shall be of the following two types:

Type 1 — Profiled and cavities components; and

Type 2 — Rectangular sections of any thickness.

*Rules for rounding off numerical values (revised).

†Glossary of terms used in plastics industry.

‡Methods of test for flexible polyurethane foam.

3.2 Grades — Each type shall be further graded on basis of indentation hardness number as follows:

GRADE	HARDNESS NUMBER			
A		7	to	9
B	Over	9	Up to	11
C	„	11	„	13
D	„	13	„	16
E	„	16	„	19
F	„	19	„	23
G	„	23	„	27
H	„	27	„	33
J	„	33	„	40

NOTE — The above grades are based on indentation hardness number at 50 percent deflection on a sample of 75 mm thickness and using a indenter of 200 mm diameter.

4. REQUIREMENTS

4.1 Description — The material shall consists of a net-work of uniform cells which are essentially open and interconnecting. The structure shall be homogeneous. The material shall be free from any strong odour.

4.2 Colour — The colour of the material shall be as agreed to between the purchaser and the supplier.

4.3 Dimensions — The dimensions of the material shall be as specified by the purchaser subject to the tolerances given in Tables 1 and 2 unless otherwise agreed to between the purchaser and the supplier.

TABLE 1 TOLERANCE ON LENGTH AND WIDTH

Sl No.	LENGTH AND WIDTH	TOLERANCE
(1)	(2)	(3)
	mm	mm
i)	Up to 300	+ 6
ii)	301 to 600	+ 12
iii)	601 „ 900	+ 19
iv)	901 „ 1 200	+ 25
v)	1 201 „ 1 800	+ 30
vi)	1 801 „ 2 200	+ 40

NOTE — No (-) minus tolerance is permitted.

TABLE 2 TOLERANCE ON THICKNESS
(Clause 4.3)

Sl. No.	THICKNESS	TOLERANCE
(1)	(2)	(3)
	mm	mm
i)	Up to 25	+ 3
ii)	26 „ 150	+ 5
iii)	Over 150	+ 6

NOTE — No (-) minus tolerance is permitted.

4.4 Hardness — The indentation hardness number at 50 percent deflection shall be within the range prescribed against each grade in 3.2 when determined by the method described in 6.3.3 of IS : 7888 - 1976*.

4.5 The material shall also comply with the requirements given in Table 3.

TABLE 3 REQUIREMENTS FOR FLEXIBLE LOAD BEARING POLYURETHANE FOAM COMPONENTS FOR VEHICLES

Sl. No.	CHARACTERISTIC	REQUIREMENT	METHODS OF TEST, REF TO CL No. IN IS : 7888-1976*
(1)	(2)	(3)	(4)
i)	Elongation at break, percent, <i>Min</i>	150	5
ii)	Tensile strength, kgf/cm ² , <i>Min</i>	1†	5
iii)	Load quotient, <i>Min</i>	1.9	6

*Methods of test for flexible polyurethane foam.

†Equivalent to 98 kN/m².

4.6 Heat Ageing Test — When the material is subjected to heat ageing test as prescribed in 10 of IS : 7888 - 1976* the tensile strength after ageing when tested in accordance with 5 of IS : 7888 - 1976* shall be not less than 70 percent of initial strength.

4.7 Component Mass — Component mass of the material shall be as agreed to between the supplier and the purchaser with a tolerance of ± 10 percent in mass.

4.8 Flammability — When so specified by the purchaser the material shall have the degree of non-flammability agreed to between the purchaser and the supplier. A recommended method of test is given in 11 of IS : 7888 - 1976*.

*Methods of test for flexible polyurethane foam.

IS : 8255 - 1976

4.9 Compression Set — The compression set of the material at 90 percent deflection shall be 10 *Max* when tested as prescribed in **8** of IS : 7888 - 1976*.

4.10 Fatigue Test — When the sample is subjected to the fatigue test as described in **7** of IS : 7888 - 1976* the loss in 25 percent indentation hardness characteristic shall not be more than 30 percent of the initial value and the reduction in thickness shall not be more than 10 percent of the initial value.

5. PACKING AND MARKING

5.1 Packing — The material shall be packed as agreed to between the purchaser and the supplier.

5.2 Marking — Each package shall be indelibly marked with the name of the manufacturer or trade-mark, if any; type; grade; dimensions and date of manufacture and batch number.

5.2.1 The packages may also be marked with the **Standard Mark**.

5.2.2 The use of the **Standard Mark** is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of **Standard Mark** may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

6. SAMPLING

6.1 The samples shall be drawn as prescribed in **12** of IS : 7888 - 1976*.

7. TESTS

7.1 Tests shall be conducted as prescribed in IS : 7888 - 1976*. Reference to relevant clauses of IS : 7888 - 1976* is given in **4.4**, **4.6**, **4.8**, **4.9**, **4.10** and col 4 of Table 3.

*Methods of test for flexible polyurethane foam.

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephones: 323 0131, 323 3375, 323 9402

Fax : 91 11 3234062, 91 11 3239399, 91 11 3239382

Telegrams : Manaksanstha
(Common to all Offices)

Central Laboratory :

Plot No. 20/9, Site IV, Sahibabad Industrial Area, Sahibabad 201010

Telephone

8-77 00 32

Regional Offices:

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002 323 76 17

*Eastern : 1/14 CIT Scheme VII M, V.I.P. Road, Manikola, CALCUTTA 700054 337 86 62

Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022 60 38 43

Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113 235 23 15

†Western : Manakalaya, E9, Behind Marol Telephone Exchange, Andheri (East),
MUMBAI 400093 832 92 95

Branch Offices:

'Pushpak', Nurmohamed Shaikh Marg, Khanpur, AHMEDABAD 380001 550 13 48

‡Peenya Industrial Area, 1st Stage, Bangalore-Tumkur Road,
BANGALORE 560058 839 49 55

Gangotri Complex, 5th Floor, Bhadbhada Road, T.T. Nagar, BHOPAL 462003 55 40 21

Plot No. 62-63, Unit VI, Ganga Nagar, BHUBANESHWAR 751001 40 36 27

Kalaikathir Buildings, 670 Avinashi Road, COIMBATORE 641037 21 01 41

Plot No. 43, Sector 16 A, Mathura Road, FARIDABAD 121001 8-28 88 01

Savitri Complex, 116 G.T. Road, GHAZIABAD 201001 8-71 19 96

53/5 Ward No.29, R.G. Barua Road, 5th By-lane, GUWAHATI 781003 54 11 37

5-8-56C, L.N. Gupta Marg, Nampally Station Road, HYDERABAD 500001 20 10 83

E-52, Chitaranjan Marg, C- Scheme, JAIPUR 302001 37 29 25

117/418 B, Sarvodaya Nagar, KANPUR 208005 21 68 76

Seth Bhawan, 2nd Floor, Behind Leela Cinema, Naval Kishore Road,
LUCKNOW 226001 23.89 23

NIT Building, Second Floor, Gokulpat Market, NAGPUR 440010 52 51 71

Patliputra Industrial Estate, PATNA 800013 26 23 05

Institution of Engineers (India) Building 1332 Shivaji Nagar, PUNE 411005 32 36 35

T.C. No. 14/1421, University P. O. Palayam, THIRUVANANTHAPURAM 695034 6 21 17

*Sales Office is at 5 Chowringhee Approach, P.O. Princep Street,
CALCUTTA 700072 27 10 85

†Sales Office is at Novelty Chambers, Grant Road, MUMBAI 400007 309 65 28

‡Sales Office is at 'F' Block, Unity Building, Narashimaraja Square,
BANGALORE 560002 222 39 71